

```

// Computer Program Listing Appendix Under 37 CFR 1.52(e)
// Copyright (c) 2004, Borland Software Corporation. All Rights Reserved.
procedure ReflectionReader.ReadPackage(Package: System.Type; Model:
TMoldModel);
var
  attrs: array of Attribute;
  i: integer;
  UMLAttr: UmlMetaAttributeAttribute;
  TV: UmlTaggedValueAttribute;
  nestedClasses: array of System.Type;
begin
  attrs := Attribute.GetCustomAttributes(Package,
typeof(UmlMetaAttributeAttribute));
  for i := 0 to Length(attrs)-1 do
    begin
      UMLAttr := UmlMetaAttributeAttribute(attrs[i]);
      if UMLAttr.Name = 'ownedElement' then // do not localize
        GetEnsuredClass(System.Type(UMLAttr.Value), Model)
      else
        ;
      end;
      attrs := Attribute.GetCustomAttributes(Package,
typeof(UmlTaggedValueAttribute));
      for i := 0 to Length(attrs)-1 do
        begin
          TV := UmlTaggedValueAttribute(attrs[i]);
          if TV.Tag = TAG_REGIONDEFINITIONS then
            Model.BoldTVByName[TAG_REGIONDEFINITIONS] :=
Model.BoldTVByName[TAG_REGIONDEFINITIONS] + TV.Value;
          end;
          // loop through elements that have no natural representation in code
          nestedClasses := Package.GetNestedTypes;
          for i := 0 to Length(nestedClasses)-1 do
            EnsureElement(nestedClasses[i], Model);
          Model.LoopBackIndexesValid := true;
        end;
      procedure ReflectionReader.ReadClassUMLAttributes(c: System.Type;
aClass: TMoldClass);
      var
        attrs: array of Attribute;
        i: integer;
        UMLAttr: UmlMetaAttributeAttribute;
      begin
        attrs := Attribute.GetCustomAttributes(c,
typeof(UmlMetaAttributeAttribute));
        for i := 0 to Length(attrs)-1 do
          begin
            UMLAttr := UmlMetaAttributeAttribute(attrs[i]);
            if UMLAttr.Name = 'constraint' then // do not localize
              aClass.Constraints.Add(string(UMLAttr.Value))

```

```

    else
    ;
end;
end;
function ReflectionReader.ConvertClass(c: System.Type; Model:
TMoldModel): TMoldClass;
var
    pi: array of PropertyInfo;
    aClass: TMoldClass;
    i: Integer;
    ElementAttr: UmlElementAttribute;
begin
    aClass := TMoldClass.Create(Model, c.Name);
    ElementAttr := UmlElementAttribute(Attribute.GetCustomAttribute(c,
typeof(UmlElementAttribute)));
    if assigned(ElementAttr) and (ElementAttr.MetaType =
'AssociationClass') then // do not localize
        aClass.Association := GetEnsuredAssociation(c, Model);
    ConvertElement(c, aClass);
    ReadClassUMLAttributes(c, aClass);
    aClass.IsAbstract := c.IsAbstract;
    aClass.SuperClass := GetEnsuredClass(c.BaseType, Model);
    aClass.ObjectType := c;
    pi := c.GetProperties(BindingFlags(54) {BindingFlags.Instance |
BindingFlags.Public | BindingFlags.NonPublic |
BindingFlags.DeclaredOnly});
    for i := 0 to Length(pi)-1 do
    begin
        if assigned(Attribute.GetCustomAttribute(pi[i],
typeof(UmlElementAttribute))) then
            ConvertProperty(pi[i], aClass);
        end;
    end;
    result := aClass;
end;
function ReflectionReader.ConvertProperty(p: PropertyInfo; aClass:
TMoldClass): TMoldMember;
var
    RelatedClass: TMoldClass;
    aRole: TMoldRole;
    anAttr: TMoldAttribute;
    CollectionAttr: UmlCollectionAttribute;
    ElementAttr: UmlElementAttribute;
    IsRole: Boolean;
begin
    IsRole := false;
    RelatedClass := GetEnsuredClass(p.PropertyType, aClass.Model);
    if not assigned(RelatedClass) then
    begin
        CollectionAttr :=
UmlCollectionAttribute(Attribute.GetCustomAttribute(p.PropertyType,

```

```
typeof(UmlCollectionAttribute)));  
    if assigned(CollectionAttr) then  
        RelatedClass := GetEnsuredClass(CollectionAttr.ElementType,  
aClass.Model);  
    if not assigned(RelatedClass) then  
        begin  
            ElementAttr := UmlElementAttribute(Attribute.GetCustomAttribute(p,  
typeof(UmlElementAttribute)));  
            IsRole := assigned(ElementAttr) and (ElementAttr.MetaType =  
'AssociationEnd');  
        end;  
    end;  
end;
```